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POTENTIAL SAFETY ASPECTS OF
THE USE OF LARGER TRUCKS
ON NORTH CAROLINA HIGHWAYS
EXECUTIVE SUMMARY

Patricia F. Waller
Forrest M. Council
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Prepared for
The Governor's Highway Safety Program
Raleigh, North Carolina

December, 1984

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EXECUTIVE SUMMARY

Until the passage of the Surface Transportation Assistance Act of 1982 (STAA), North Carolina did not allow the use of twin trailers, 48-foot trailers or 102-inch wide trailers as a matter of routine practice. With the advent of the STAA, all of these configurations must be allowed on the interstate system and certain designated routes. This change in practice elicited some concern regarding the safety of these larger configurations on North Carolina roads and highways, and this project was undertaken to examine potential problems that may arise in their use and how such problems may be minimized or avoided altogether.

This project received generous input from a variety of interests, persons, and organizations as mentioned previously. Such input was used in conjunction with information from the literature and professional workshops and meetings to identify some of the potential issues in the use of the larger trucks. A survey was conducted of motor carriers who operate in the State and who were likely candidates for the use of the larger configurations. These motor carriers provided a range of information, including their current usage rates and their best projections of future usage of the larger trucks. This latter information was used to arrive at projections of truck usage on specific roadways for use by the State Division of Highways in roadway maintenance/upgrading planning. However, this information does not appear in this report because it was company specific and therefore confidential. Consequently, the information in this report includes only the other types of information that were provided.

In addition, a very small group of drivers was interviewed. The motor carriers and the drivers provided information freely, and it is on the basis of their input, as well as on information gleaned from the literature and professional organizations, that this report is based.

About 53 percent of the motor carriers contacted are using twin trailers, while 48-foot trailers are used by about 56 percent of them. Most of the twin trailers are 102 inches wide, but fewer than half of the 48-foot trailers are 102 inches wide. Eventually, however, the vast majority of both trailer types will be 102 inches wide. At the present time, twins and 48-foot trailers make up a relatively small percentage of the overall fleet, but twins represent a somewhat larger proportion of the fleets where they are represented than is

true for 48-foot trailers (17 percent of the trailers and 8.4 percent of the fleet mileage for twins, as opposed to 3.6 percent of the trailers and 7.2 percent of the fleet mileage for 48-foot trailers). Based on the figures supplied by these motor carriers, twins will eventually represent 36 percent of the total trucks the sampled companies place on the road, and 48-foot trailers will eventually represent about 14 percent of the total trucks they place on the road. In other words, for those fleets that include twins, about 7 out of 20 rigs will have this configuration. For those carriers using 48-foot trailers, about 3 out of 20 trucks will be hauling this type of trailer.

Although these rigs are longer than those previously used, only a few companies are taking steps to increase visibility from the side, using additional lights and/or reflective materials.

The age of drivers operating the larger rigs does not appear to be a major consideration. Driver training appears to focus primarily on the hooking and unhooking of the trailers, with few companies offering hands-on road driving experience under supervision. Likewise, maintenance procedures are not usually different, but when there are special procedures, they deal with handling dollies and converter gears.

While the motor carriers appeared satisfied with their training procedures, the drivers did not. Only two drivers (out of 13 interviewed) had had any hands-on experience with twins before having them assigned for over-the-road use. In many instances, even when minimal training received (usually a film focusing primarily on hooking and unhooking procedures), it did not occur until some time after the driver had been operating twins. On the whole, drivers reported that their training had been skimpy at best, with a single exception of one driver who had been given extensive training in the operation of twins. Adequate driver training and adequate driver certification with "teeth" in it were mentioned by the drivers as prime needs.

While all companies investigate crashes, very few keep computerized records. Most companies operating twins are maintaining special records on their experience.

On the average, companies anticipate a productivity increase of approximately 10 percent with the use of the larger trucks and fuel savings between 5 and 10 percent.

Companies expressed a great deal of concern about the lack of uniformity in state practices, e.g., considerable variation in the designated route system

from one state to the next, variation among states in registration of dollies, in permit weights, and in axle laws. Also related to routes was the expression for the need for better marking for dead-end streets, better signing, better route selection for detours since twins cannot back up, and better access to terminals. Other state practices that companies would like to see implemented include better enforcement of tailgating and speeding laws, quicker turnaround on driver record checks, and the forwarding by each state of a copy of a citation to the motor carrier for whom a driver operates.

Several concerns were mentioned by both drivers and motor carriers. These included the stability of the vehicle, with particular concern about sway in the last trailer; operation of the larger rigs in bad weather; and operation of these rigs on narrow roads. The condition of roads was also mentioned by both groups in that pavement edge drops and rough surfaces apparently cause more problems for twins than for other configurations. One company pointed out that they would like to see better roads for the higher taxes they are paying.

Drivers frequently mentioned problems with swaying or wiggling of the trailers, particularly the back trailer, and reported that with some frequency they are given configurations in which the rear trailer is loaded more heavily than the front one even though such a practice is generally recognized as hazardous. They were also concerned about the adequacy of mechanics' training for maintaining and servicing twins, especially in regard to the brakes. Uneven braking was frequently mentioned as a problem by the drivers. Some reported difficulty in making a quick maneuver, such as a sudden evasive move requiring a sharp cut into another lane in that if the driver cuts too sharply it sets up excessive sway in the trailers. The Jifflox was also a bone of contention in that drivers find it heavy and unwieldy to handle alone, as required by company policy, and report that back injuries are occurring as a result.

Drivers had fewer concerns about 48-foot trailers, and most of these related to the greater width and its incompatibility with the current mirror placement on many tractors. There was also some concern expressed about controlling the extra length in maneuvering corners.

It is clear that there is some consistency between the concerns expressed by the motor carriers and drivers and the problems revealed in the crash investigations. Excessive speed, low shoulders, narrow lanes, sway in the back trailer, sway resulting from quick maneuvers in certain lane changes or in maneuvering curves, icy roads, trailers becoming unhooked while traversing rough pavement, and uneven braking were all factors in at least one of the crashes

investigated, while driver training and qualification were at least suggested as a possible factor in another.

There appears to be considerable confusion and lack of coordination or consistency in how states are interpreting and implementing the STAA. One company, based in another state, reported that they are doing nothing to increase the length or width of their trucks because of such interstate inconsistencies. Although there would be no problem in some states, it was pointed out that a company cannot maintain several fleets to operate in each of several states. As this motor carrier put it, "The STAA did nothing for us except raise our taxes."

It appears that at least some of these problems could be mitigated through an ongoing process whereby selected representatives from each of the major interests meet regularly and discuss their mutual goals and best ways of meeting those goals and what concessions would have to be made by whom in order to arrive at some equitable solutions. While it is recognized that not all problems would be amenable to such an approach, at the same time it appears that if we are to have larger trucks on our highways and if we are to realize the economic benefits that may accompany their use and at the same time ensure that these larger trucks are operating as safely as they should, there will need to be more coordinated attention paid to some of the underlying issues. At the present time it appears that different states and different companies are applying different yardsticks with a situation resulting that is not necessarily working to the greatest benefit of either the motor carrier industry or the public. While the Federal government has required that the larger trucks be allowed on certain routes, there has not been a corresponding effort to ensure that the qualifications of the drivers and the conditions of the vehicles are adequate, nor have the highways themselves been given adequate attention to ensure that lane widths, shoulder heights and widths, pavement conditions, and signing are sufficient to enable safe operation. Because there will be some time lag before the larger rigs reach maximum usage in North Carolina, there is still time to take steps to increase safety while enhancing economic benefits.